E3-E4 CM

MOBILE INTELLIGENT NETWORK

WELCOME

- This is a presentation for the E3-E4 Technical (CM-Module).
- Topic: **MOBILE INTELLIGENT NETWORK**
- Eligibility: Those who have got the upgradation from E3 to E4.
- This presentation is last updated on 22-3-2011.
- You can also visit the Digital library of BSNL to see this topic.

Agenda

- What is IN?
- Objectives and benefits of IN
- Working of IN
- Basic concept of MIN
- MIN Technology
- MIN deployment in BSNL
- MIN services

INTELLIGENT NETWORKS

- Intelligent Network (IN) is a system where all the elements are arranged into a unified, programmable system.
- Without IN, they operate in the same distributed fashion as their mechanical predecessors.
- In intelligent network, all elements are controlled by a central processor independent of core n/w.

MAIN OBJECTIVE

The main objective of intelligent network is introduction and modification of new services in a manner which leads to substantial reduction in lead times and hence development costs.

Thus, IN made all the network elements to work together.

In the IN architecture, system decides, what actions should be taken and generates the appropriate signals to all the network elements that need to know about it.

BENEFITS of IN

1.**Manageability**- manages different services like connect/disconnect customers, billing criteria etc, from a central terminal. this leads to shed staff, reducing costs, and to improve customer service.

2.C**ompetition**- creates a competitive market for network operators and service providers .

3.**Enhanced services**- capable of offering a whole range of complex services and extra features..

4. **Service framework**- changes the basic of service framework, on which elements of network are managed and services are provided more efficiently.

DRAWBACKS

In non-IN telecom network, there is no single point of failure as it is a distributed system

but IN is susceptible to catastrophic failure because of the immense size and complexity of the distributed controlling software.

Intelligent Network - How it Works

IN works on the basis of indivisible events and functions.

These events and functions are called Service Independent Building blocks (SIB), which builds the basic blocks for different services.

IN system views the service and runs service by initiating the right SIB in the right place at the right time controlled by SCP.

Service Control Points (SCP) lies between the Service Management System (SMS) having various elements & intelligent peripherals and Service Switching Point (SSP).

MOBILE IN CAPABILITIES

The reasons for deploying Mobile IN technology is to provide value-added capabilities, such as-

- Cost reduction,
- Improved service delivery,
- Increased variety and quality of services,
- Rapid service creation and deployment.

MIN CONCEPTS

Mobile intelligent network (MIN) has the concept of intelligence in mobile networks i.e. to migrate intelligence away from the MSC, VLR and HLR and introduce functionality.

and

MIN is a concept that meets market demand
-for service provider and
-for service subscriber
as it
-creates advanced services using existing network

MIN Concepts Contd..

MIN Concepts involves the concept of a "query/response" system

i.e.

MIN has distributed intelligence, wherein a database is queried for information necessary for call processing.

for example, a mobile communication switch (MSC), that is equipped with mobile in call logic, can launch a message or "query" to a database hosted by a network element called a service control point (SCP).

the SCP processes the request and issues a "response" to the MSC so that it may continue call processing as appropriate.

ADVANTAGES OF MIN

various advantages of MIN are-

- reduces the time from service idea to network implementation
- minimum changes in the infrastructure
- no additional equipment for introducing new service
- easy implementation
- easy customization
- vendor independence

MIN TECHNOLOGY

Two primary forms of in technology employed are:-

1. INTELLIGENT NETWORK APPLICATION PART (INAP)—

INAP is a technology developed for fixed networks

2. **CUSTOMIZED APPLICATIONS FORMOBILE NETWORK ENHANCED LOGIC (CAMEL)**—

CAMEL was designed for Mobile Networks.

IN CONCEPTUAL MODEL

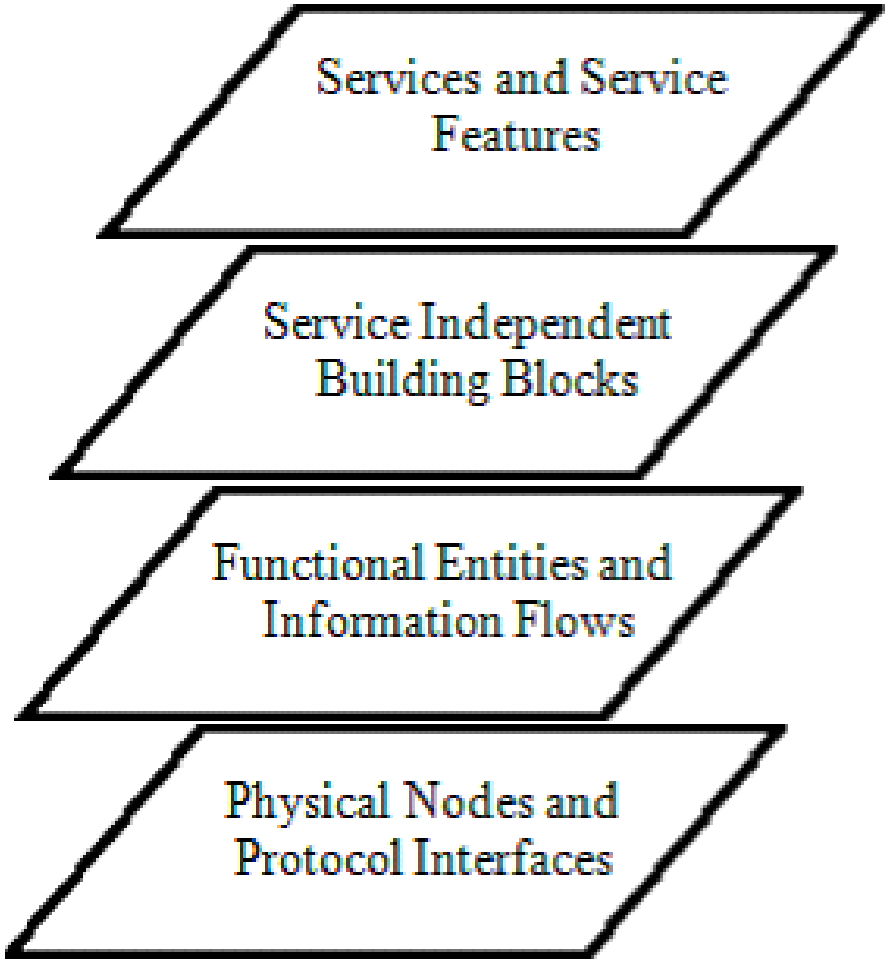
The INCM forms a framework for design and capabilities.

INCM is represented by a

- Service plane,
- Global functional plane,
- Distributed functional plane
- Physical plane.

INCM and CAMEL are both based on the INCM.

INTELLIGENT NETWORK CONCEPTUAL MODEL



CAMEL PHASE-I

- CAMEL phase-I was introduced in 1997.
- as mobile operators begin services that could work while roaming.

BUT

- CAMEL phase-I does not offer the ability to interact with the specialized resource function (SRF).
- SRF is a functional capability of voice response units (VRU).
- CAMEL based intelligent networks based on SRF.
- VRU is an important network element for certain applications such as in based mobile prepaid service.

CAMEL PHASE -II

- CAMEL phase-II was introduced in 1998.
- CAMEL phase-II was built on the basic call control capabilities of SRF.
- Phase-II provided many additional CAMEL capabilities. Most significant was to support for SRF ,i.e.. interaction with service resources like VRU.
- VRU plays voice prompts during prepaid account recharge and announcements such as a low balance warning etc.

CAMEL PHASE -III

- At present, CAMEL Phase-III is implemented throughout BSNL network.
- In case of CAMEL Phase-II, intertechnology prepaid roaming was available for voice calls only,
- In CAMEL Phase-III intertechnology prepaid roaming for voice as well as data call is possible.
- Intertechnology roaming feature means using MSC/VLR of one vendor and MIN network of another vendor.

MIN in BSNL

Mobile IN network in BSNL is distributed in four zones viz. NORTH ZONE ,EAST ZONE, SOUTH ZONE & WEST ZONE.

- **NORTH ZONE** MIN NETWORK HANDLES H.P, J&K, HARYANA , PUNJAB, U.P(W) , U.P(E) ,UA, RAJASTHAN.
- **EAST ZONE** MIN NETWORK HANDLES WEST BENGAL , ORISSA, BIHAR, N.E, JHARKHAND ,A&N
- **SOUTH ZONE** MIN NETWORK HANDLES ANDHRA PRADESH , KERALA , TAMILNADU, KARNATAKA
- **WEST ZONE** MIN NETWORK HANDLES MAHARASHTRA M.P , GUJARAT , CHATTISGARH.

BSNL MIN NETWORK

North Zone

Chandigarh

South Zone

Trichy ,Coimbutore,
Hyderabad

East Zone

Kolkata

West Zone

Pune

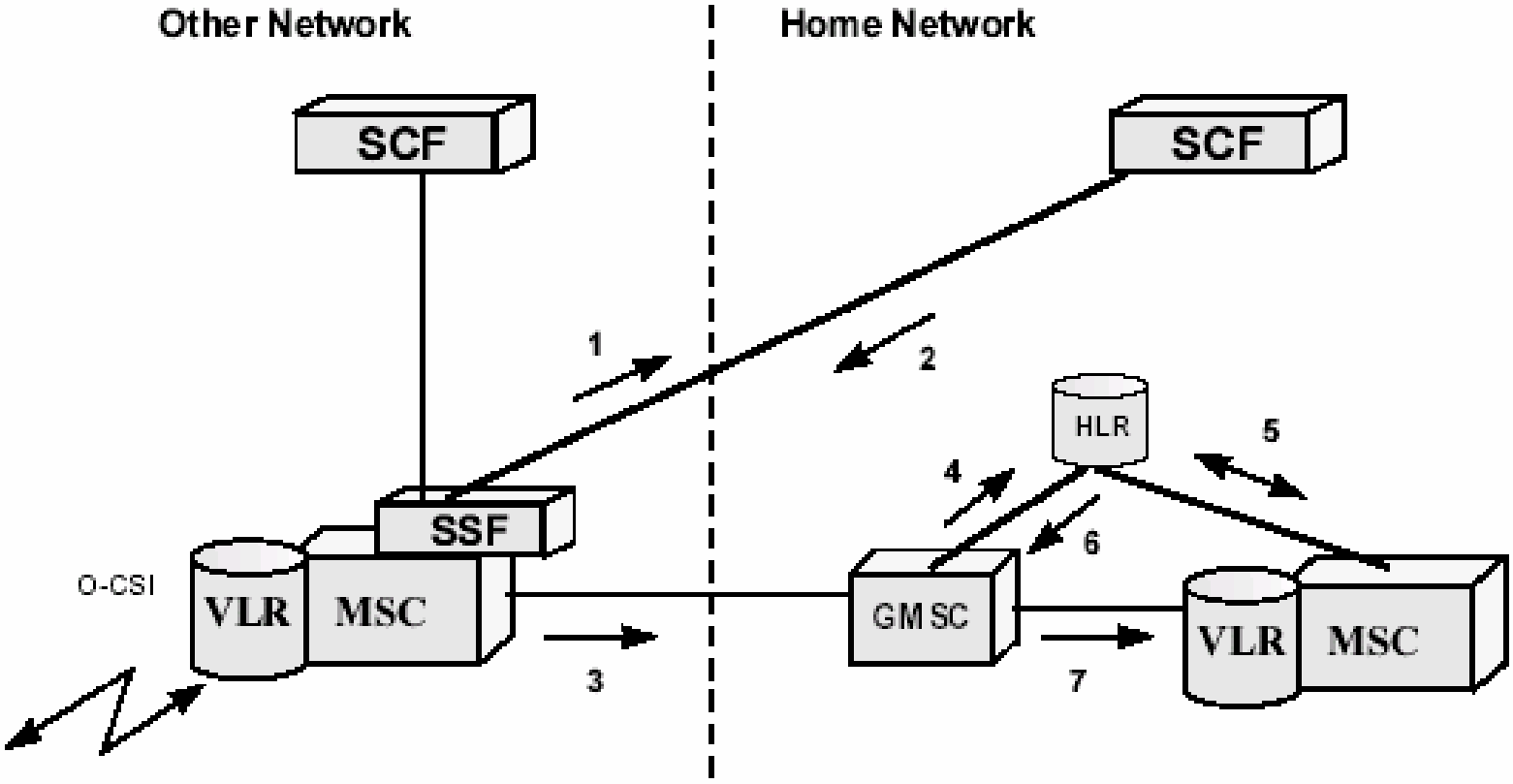
CONNECTIVITY ISSUES

- For MIN connectivity every MSC has connectivity with SCP of its respective zonal MIN . Accordingly MIN routing in defined in every MSC in order to excess MIN network of respective zone.
- Zonal MIN networks are connected with each other to provide prepaid & other MIN services throughout country.

  Incase of roaming, prepaid connection can be recharged from anywhere in India.

ROAMING IN OTHER NETWORK

ROAMING IN AN OTHER NETWORK



SOME SERVICES OFFERED BY MIN

- TOLL FREE SERVICE
- UNIVERSAL ACCESS NUMBER
- VIRTUAL PRIVATE NETWORK
- TELEVOTING
- VIRTUAL CALLING CARDS
- PREMIUM RATE


Thank You!